



US006606294B2

(12) **United States Patent**
Takemura et al.(10) **Patent No.: US 6,606,294 B2**
(45) **Date of Patent: Aug. 12, 2003**(54) **OPTICAL DISK HAVING READ-ONLY AND REWRITABLE AREAS**(75) Inventors: **Yoshinari Takemura, Settsu (JP); Takashi Ishida, Yawata (JP); Shunji Ohara, Higashiosaka (JP); Isao Satoh, Neyagawa (JP)**(73) Assignee: **Matsushita Electric Industrial Co., Ltd., Kadoma (JP)**

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **10/144,339**(22) Filed: **May 13, 2002**(65) **Prior Publication Data**

US 2002/0131360 A1 Sep. 19, 2002

Related U.S. Application Data

(63) Continuation of application No. 09/546,048, filed on Apr. 10, 2000, now Pat. No. 6,418,111, which is a continuation of application No. 08/954,929, filed on Oct. 21, 1997, now Pat. No. 6,078,559.

(30) **Foreign Application Priority Data**

Oct. 23, 1996 (JP) 8-280491

(51) Int. Cl.⁷ **G11B 7/24**(52) U.S. Cl. **369/275.3; 369/275.1; 369/59.25**(58) Field of Search **369/275.3, 275.6, 369/275.1, 67.16, 59.27, 59.25, 59.11, 44.26, 47.32, 47.19, 47.35, 124.07; 714/805; 711/4, 111; 386/95, 96; 710/73; 235/454**(56) **References Cited****U.S. PATENT DOCUMENTS**

5,023,854 A 6/1991 Satoh et al.

5,130,966 A	7/1992	Yoshio et al.	369/47.16
5,214,627 A	5/1993	Nakashima et al.	369/275.3
5,521,900 A	5/1996	Ando et al.	
5,537,387 A	7/1996	Ando et al.	
5,737,639 A	4/1998	Ohmori	
5,812,519 A	9/1998	Kawamura et al.	
5,896,364 A	4/1999	Okazaki et al.	
6,078,559 A	6/2000	Takemura et al.	
6,103,407 A	8/2000	Izumi et al.	428/694 ML
6,317,407 B1	11/2001	Takemura et al.	

FOREIGN PATENT DOCUMENTS

EP	0 542 730	1/1987
EP	0 555 065	2/1993
EP	0 613 144	2/1994
EP	0 768 648	10/1996
EP	0 893 792	4/1997
JP	62-197929	9/1987
JP	62-285232	12/1987
JP	2-232831	9/1990
JP	8-22640	1/1996
TW	256918	9/1995

Primary Examiner—Ali Neyzari

(74) Attorney, Agent, or Firm—Renner, Otto, Boisselle & Sklar

(57)

ABSTRACT

The optical disk of this invention includes a read-only area in which a plurality of read-only tracks are formed and a rewritable area in which a plurality of rewritable tracks are formed, wherein each of the plurality of read-only tracks is divided into a plurality of first sectors, a signal is pre-recorded in at least one of the plurality of first sectors under a predetermined reproduction format, each of the plurality of rewritable tracks is divided into a plurality of second sectors, a signal is recordable in at least one of the plurality of second sectors under a predetermined recording format including the predetermined reproduction format, and the read-only area is located on an inner portion of the optical disk, while the rewritable area is located on an outer portion of the optical disk.

1 Claim, 10 Drawing Sheets